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NARRATIVE STORY
OF
A UNIT ON SOIL EROSION

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A Unit on Soil Erosion
As Worked Out by 1C and 1B Children
Menlo Park School
Tucson, Arizona
Supervised by Miss Marie Davery

Our unit on Soil Erosion was worked out chiefly using the out-of-doors as our basis of activity. The desert, the hills with their uncontrolled flood waters, the washed-out bridges and road beds, the heavy-hanging, dust-laden air, whirlwinds, dust storms, rivers which cause great damage at flood times, the barren and tree-covered mountains, all these helped the children to understand and develop a unit which they were all intensely interested in.

One rainy day we watched the rain come down. We caught some in our hands and found it was clean, as it came from the sky. We saw it run in rivulets down the road, noted the dirt in the water, saw how it carried the dirt with it as it went on its way, running off too quickly from the vacant lots across the street. There was nothing there to hold it. We talked of what happened in the nearby hills when it rained; how the rain washed the roadbed; how the Santa Cruz River became a raging torrent. Frank told of how the water from the river washed into his home; Roman, how the river washed away a wall of their house. Others told stories of their fathers getting big trees and wood from the river as it raced along.

We discussed the good the rain would do, what it would help--flowers, grass, trees, bushes, the farmer, animals, etc.--and how it made the desert green.

We learned a song, "This is the Way the Rain Comes Down,"

and had poems and stories relating to the rain for our Literature work.

The next day we discussed where the rain comes from; the sky. How it got there. A simply-worded story of the raindrop in the ocean, the sun pulling it up into the sky, the cloud, the rainfall. (This story was developed by Miss Raymond, and the children were able to retell it bit by bit in their own way. Later this was used as a basis for a booklet which the children illustrated themselves. One of these booklets is enclosed with illustrations by four different children.) Where the rain went, how it got back to the ocean with the food for the fish. How the water ran under the ground. Jesus has a well, and by blackboard drawings we saw how the underground water filled his well. More blackboard drawings showed what happened to the little seeds in the ground when the rain watered them. We planted some seeds to watch them grow. Some, too green, did not grow. Others, matured and dry, did grow. The plant in the seed must be ready to grow. The children learned the poem, "In the Heart of a Seed." We talked of flowers on the desert, which were beginning to bloom. Why we should not pick too many. Seeds fall, and flowers will grow again next year. "No seeds, no grow". This happened to be near Easter time, and many of our Easter stories and poems and art work correlated with this subject.

What other growth on the desert about us? Different kinds of grasses--long, short, well-rooted, short-rooted, --bushes, small trees, cactus, etc. What the grass on the desert was good for. Animals eat it. Through this we developed the different

types of grazing. Why horses and cows do not cut the grass as short as sheep and goats. The difference in the mouths.

"Their noses would get full of dirt." What the different grazing animals, horses, cows, sheep, goats, eat. A reading lesson was developed on this and read from the blackboard. Pictures were drawn to illustrate the story they read. We talked of how the roots hold the soil and help to keep it in place. Some of the illustrations show how the idea carried.

What would happen if the grazing animals ate too much of the grass, and the wind blew too hard? Dirt would blow away. Perhaps the wind would bring a cloud from the ocean and wet the soil so the wind couldn't blow it away. The rain would wash it into gullies, which would get bigger, and Bigger, and BIGGER, 'till people couldn't get over them. How the water runs down the gullies and washes good soil away. How to help this. Building dams, planting trees, building checks or fences to keep the erosion down. Animals that live on the desert. What they do, where they live, how they help each other keep a balance in nature. The children enjoyed "Mavericks of the Desert," with the illustrated stories of desert dwellers. Quite a little time was spent on the study of the animals of the desert and their place and value in the general scheme of things. Too many rabbits, rodents, burrowing animals, cause damage and too much aeration of the soil; too few, and the plant roots do not get enough oxygen, moisture, etc.

Just about this time we had another help for our studies from Nature. The air and sky were filled with heavy-hanging dust brought by the wind from New Mexico and Texas. We talked of how the dust came; from where; what caused it. Much of this discussion was carried on by the children themselves. Although many are just learning English this year, and their sentence structure is not of the best (often one or two words were used to convey the thought they wished to express), the interest of the children in the subject was very active and sustained.

Many days after the dust cloud had left, we were at play, and a whirlwind struck our group unexpectedly. I turned without thinking and said, "Goodness, where did that dust come from?" Immediately an answer popped out, "From Texas." Another day a dust storm was raging about the school and a child asked, "Miss D., is all this dust from Texas?" I said "No." Then I told the children to look out of the window across the street to see what was happening. They discovered that the topsoil was being moved from the country about us, because there was not enough growth on the land to hold it. "We need to let the little flowers grow. Do not pick them." A hedge was planted around the school two years ago as a windbreak. We talked of this and how it would help the dust menace in and about the school.

Out of this grew the study of forests; where they were; how many children had been there; what they saw. Most of the forests that the children know about are in the mountains. Why they grew there--cooler--more moisture summer and winter.

Many times we see it raining in the mountains in summer, or snowing in winter, when it is dry in Tucson. Trees need much water to grow big.

We talked of the various kinds of trees. Some are green all winter, some go to sleep. What happens. Sap goes to roots, trees stop growing. Sizes of trees in forest, grandparents, parents, children babies. What trees are used for. What in the room was made of lumber; in the home; other uses, fences, etc. What kinds of lumber should be cut. Why cut big trees? Why let baby trees grow? We developed a reading lesson on this and read it from the blackboard, then drew pictures of the forest.

Much interest was shown in the discussions on reforestation. Nearly every child had a father, brother, uncle, or acquaintance who was in the CCC, and all were willing to tell what work was being done by these people. Pictures were brought of young trees set out in Wales, so I told the children of how the same thing that is happening in our country is occurring in other countries also.

The subject of how the animals help the forest in which they live. How they help one another. At this time we were reading a series of animal stories which correlated with our Nature Study. Stories of rabbits, squirrels, foxes, birds. The little boy did not want his goat to run into the woods, not only because he would eat the grass, but he might also eat the bushes and little trees. We have many animal books in the library, and through them we discovered that porcupines eat the bark from trees and kill them; that camels are used to carry people across a big

desert and why; where foxes live; much about squirrels; how the birds help the trees by eating the insects, as well as lending beauty to the forest. A short reading lesson based on what we learned from our library books was suggested by the children.

When the trees go to sleep or drop their old foliage for new, ground litter forms. What good is it? Cause and effect. How it helps the trees and plants by fertilizing the ground and by holding the moisture in the ground. The children were very interested in this, and found evidence of it all about. The words "ground litter," for some reason, caused them a great deal of enjoyment, and were used at every opportunity. "Topsoil," also, was, and still is, in constant use. Yesterday we were experiencing one of our frequent dust storms and one child looked up and said, "My, Miss D., the wind is taking away a lot of topsoil, isn't it?" These remarks are made in all seriousness, and show intense interest in the subject. Ground litter has been found on the way home from school, on the desert, in the woods, where the trees grow along the river, since the children have learned what it is.

The difference between forest and desert growth was discussed. Why? What the desert had been like. What had happened. Places where the desert had been made to blossom. How. Where the water comes from; where the dams are; how they are made. Pedro and Rosa had picked cotton in irrigated districts. Others had seen the way water is used for irrigation

purposes. We discussed how the growth on the desert can be improved. Gilberto's grandfather has a cattle ranch, but, according to Gilberto's story, "the grandfather will not let the cows eat too much grass in one place. He takes a stick and makes them move on to another place."

How can we help make the desert more beautiful and more livable? How can we keep erosion from marching on and carrying off with it all vegetation as it has done in many places? By planting flowers, trees, shrubs, hedges about our homes; by not picking the desert flowers, letting them multiply; by not cutting the wood or cactus from the desert (this is an economic problem, and though there are restrictions against it, much wood is removed from the hills and deserts yearly); by enjoying the beauty of the desert and forest as it should be, and not marring it by vandalism and greed, so that in time the desert shall blossom as a rose.

READING VOCABULARY (Words not Previously Developed)

raindrop	ocean	sun	strong	pull	pulled	many
cloud	wind	sky	flowers	desert	shook	ground
seeds	hole	far	long	roots	bushes	paper
forest	woodsman	took	branches	short	insects	worms
hawk	porcupine	river	topsoil	food	tunnel	

NEW TALKING VOCABULARY

ocean	spring (water)	raindrop	forest litter	insects
worms	roots	tunnel	twigs	topsoil
erosion				

ATTITUDES

Greater interest in general phenomena of nature; rain, clouds, sun and water, dust storms, floods, storms. The questions asked about these things showed the intense interest of the children.

More care and thoughtfulness regarding plants and flowers.

Greater pride in the school ground and their own homes. A set of garden tools from our school cupboard was in constant use in keeping the papers and rubbish off the school grounds. The children vied with each other in this activity.

Greater enjoyment of Nature and her beauties.

READING LESSONS

These were worked out on the board by the class as a group, with the exception of the water cycle story used in the booklet. The stories were then illustrated, after they were read silently by the children. Each child chose the part of the story he wished to illustrate and set to work. All of the illustrations were original.

POEMS USED

In the Heart of a Seed

In the heart of a seed,
Buried deep, so deep,
A dear little plant
Lay fast asleep.

"Awake," said the sunshine,
"And creep to the light."
"Awake," said the voice
Of the raindrops bright.

The little plant heard
And rose to see
What the wonderful
Outside world might be.

What is a River?

A reever? Si, Mees English,
I know what is a reever.
Eet ess the place whaire the water runs
When God ess a generous geever.
Eet rains, and rains, and the waters pour
From out of the clouded sky,
An' vairee soon the waters run;
The san' ees no longer dry.

The waters come, they no can stop,
They tumble, and toss, an' twirl;
Mad-like they race and chortle weeth glee
As 'round Pedro's hut they swirl.
Pedro no laugh as he sees his home
Shaking in frenzied fright,
Adobe walls crumble to naught,
To heem a vairee sad plight.

As queek as they come, the waters cease,
The san' eet ees dry an' bare.
Then Pedro, from the brown, hard earth,
Builds a new casa weeth care.
Si, Mees, I know what ees a reever,
Eet ees a symbol of pain,
Eet ees the place whaire the waters rush
Whenever God sends the rain.

STORIES DEVELOPED BY CHILDREN AND OTHER STORIES

"Who Likes the Rain?" "The Rain is Raining All Around;" "Trees;"
"The Desert's Laster;" "The Turtle;" "The Woodpecker;" "The Little Pink
Rose;" "Animal Stories;" "How We came to Have Pink Roses;" "The Horn-
toad and the Cow;" (The Frog and the Ox).

LIBRARY
Soil Conservation Service
U. S. Department of Agriculture
Washington, D. C.

